

## ROMAN AND LATE ROMAN BONE SPINNING TOOLS FROM STOBI, MACEDONIA

Herramientas de hilado romanas y tardo-romanas procedentes de Stobi, Macedonia

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**ABSTRACT** This paper is concerned with bone spinning tools from the archaeological site of Stobi in the Republic of Macedonia. Most of the spinning tools come from burials, although there were a few tools discovered in the settlement. The earliest bone spinning tool dates to the late 1<sup>st</sup> century B.C. while the youngest are found in contexts from the 6<sup>th</sup> century A.D. The spinning tools are grouped into spindle whorls, spindles, and distaffs. Possible changes in the thickness of the spun thread in different periods can be seen through the different shape and weight of the presented spindle whorls. The irregular dispersions visible at the bottom side of two of these spindle whorls reveal the method of fastening the whorl to the spindle. Although spindles differ in the shape of their upper end, this cannot be associated with their chronological determination. What is in common for spindles is the burial context of discovery. The case is similar with the hand held distaffs, where three out of the four discovered thus far have burial contexts. By introducing other scholars' research for these types of distaffs along with the attributes of examples from Stobi, the assumptions of their apotropaic and symbolic use will be discussed.

**Keywords:** Spinning Tools, Bone Tools, Spindle Whorl, Spindle, Distaff.

**RESUMEN** Este artículo se centra en los útiles de hilado en hueso procedentes del yacimiento arqueológico de Stobi, en la República de Macedonia. La mayoría de estos útiles proceden de enterramientos, aunque algunos de ellos fueron documentados en contextos de poblado. El elemento más antiguo ha sido datado en el I siglo BC, mientras que los más recientes provienen de contextos del siglo VI AD. Los útiles de hilado se agrupan en ruedas de huso, husos y ruecas. Posibles cambios en el espesor de las fibras de hilado a lo largo de diferentes períodos puede ser observado en las variaciones en forma y peso de las ruedas de huso estudiadas. Las dispersiones irregulares visibles en

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el lado inferior de dos de estas ruedas de huso reflejan que el método de sujeción de la rueda al huso. Aunque los husos difieren en la forma de su extremo superior, esto no puede asociarse con inferencias cronológicas. Lo que tienen en común los husos es el context funerario donde fueron descubiertas. El caso es similar con las sujeciones de mano de las ruecas, donde tres de los cuatro descubiertos provienen de contextos funerarios. Presentando investigaciones previas para este tipo de ruecas con atributos similares a los de Stobi, la consideración de su uso protector y simbólico es también analizada.

**Palabras clave:** Herramientas de hilado, Útiles de hueso, Rueda de huso, Huso, Rueca.

## INTRODUCTION

The Roman city of Stobi is located in the central region of the Republic of Macedonia (fig. 1). In the 1<sup>st</sup> century CE the city had the rank of *municipium*, and later it was the capital city of the late Roman province of *Macedonia Secunda* (Wiseman, 1986:40-42). The site has been excavated since the beginning of the 20<sup>th</sup> century, and a vast number of bone tools have been discovered, of which 20



Fig. 1.—Location of the Archaeological site Stobi.

examples can be definitively attributed to the process of spinning. Included are ten spindle whorls, five spindles, and four distaffs, none previously published. They all come from different contexts; most of them came from burials, and few were discovered in the settlement. The aim of this paper is to provide descriptions of these artifacts and through analysis of the context and comparison with similar tools, offer a more accurate interpretation of their chronological and typological determination. Unfortunately, zoological identification of these tools has not yet been conducted.

## SPINDLE WHORLS

A total of 11 bone spindle whorls have been discovered at Stobi to date. Five of them (fig. 2:1,3-6) were discovered in burials, while the remaining six (fig. 1:2,7-9; fig.2:10,11) were found in the settlement. Three of the spindle whorls (fig. 2:1,3-4) were discovered along with their respective spindles (fig. 3:14-16). Using criteria by Biró (1994:50) the spindle whorls from Stobi can be divided into two groups: spindle whorls which are flat discs (*verticulus*) and spindle weights (*turbo*) the shape of which may be conic or semi-globular.

### Flat Discoid Spindle Whorls - *Verticulus*

Five of the spindle whorls (fig. 2:1-6) belong to this group. They have a diameter between 2.2-3.4 cm, a perforation with a diameter between 0.7-1.2 cm, and thickness of between 0.2-0.9 cm. Their surface is smooth and polished, and one or both sides are decorated with incised grooves. Similarly decorated spindle whorls were discovered at Salona in Croatia (Ivčević, 2002a:474; Ivčević, 2002b:Sl.25-37), in Hungary (Biró, 1994:548-550, Pl.LXIV), at the Nicopolis and Istrum in Bulgaria (Roberts, 2007:76, fig. 3.5, no.3.176), and at Zeugma in Turkey (Charles, 2013:fig. 14,17). In terms of dating, the earliest is the spindle whorl (fig. 2:2) that was discovered in a context from 75-25 B.C. Another the spindle whorl (fig. 2:6) was discovered in an early 1<sup>st</sup> century burial, and a third whorl (fig. 2:5) is dated to between the second half of the 1<sup>st</sup> and the first half of the 2<sup>nd</sup> century A.D. The other three spindle whorls (fig. 2:1,3,4) have a wider date range of the 1<sup>st</sup>-4<sup>th</sup> century A.D.

### Spindle Whorl Weights - *Turbo*

Five spindle whorls belongs to this group, of which four (fig. 2:7-9; fig. 3:10) have a lower spherical and upper flat side, and only one (fig. 3:11) has an irregular conical shape.

The surface of four of the weights from Stobi (fig. 2:7,8; fig. 3:10,11) is undecorated, and only one (fig. 3:10) is decorated with multiple incised circle

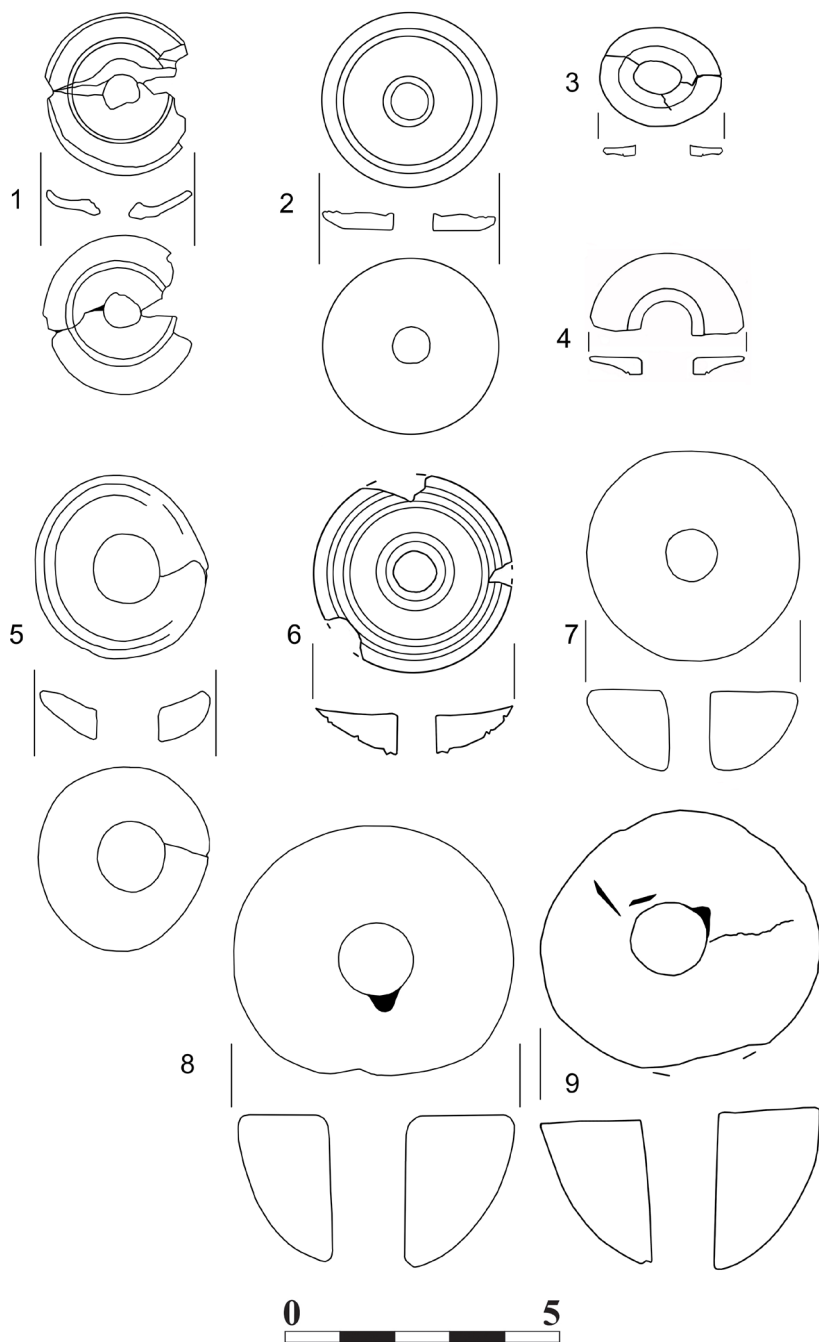


Fig. 2.—Flat discoid spindle whorls – *Verticulus*, 1-5 (Inv. Nos. PH-95-121/2, MF-72-27, PH-92-436/3, PH-92-436/4, PH-92-418); Spindle whorl weights – *Turbo*, 6-9 (Inv. Nos. PH-16-57, MF-67-6, PH-95-421, PH-16-17).

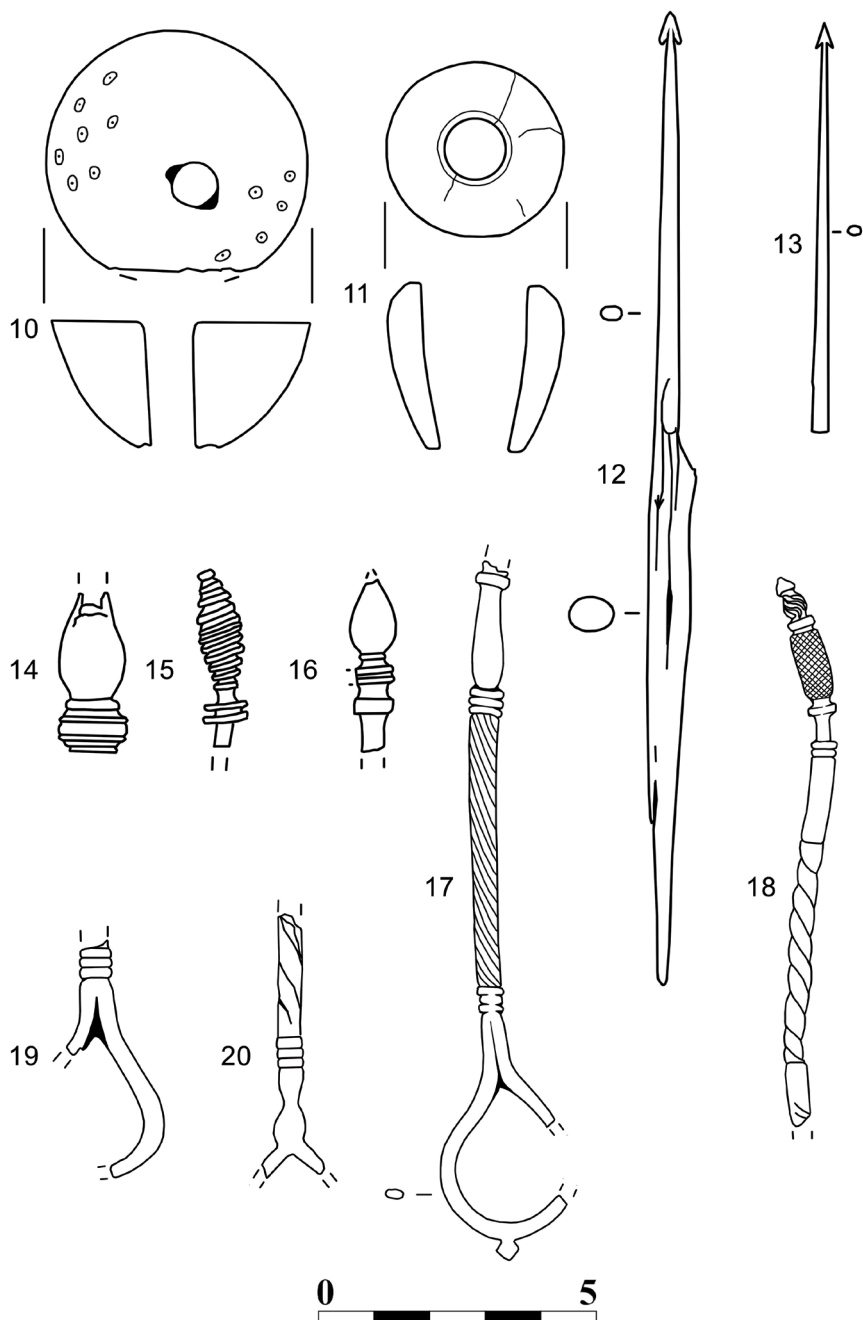


Fig. 3.—Spindle whorl weights – *Turbo*, 10-11 (Inv. Nos. PH-16-18, PH-01-08); Spindles with an upper end in the shape of an arrow, 12-13 (Inv. Nos. PH-95-111, PH-92-304); Spindles with their upper end modeled with grooves and rings, 14-16 (Inv. Nos. PH-95-121/1, PH-92-436/1, PH-92-436/2); Distaffs, 17-20 (Inv. Nos. PH-95-116, PH-10-159, MF-71-140, HK-09-84).

and dot motifs. On the lower side of two of the spindle whorls (fig. 2:9; fig. 3:10) irregular depressions with a smooth surface are formed along the edge of the perforation (figs. 4 and 5). These result from the attachment of the thread to the spindle. During the initial spin of the spindle during the free fall, the thread may slip and disconnect from the spindle due to the weight of the spindle whorl. Tying a knot at the lower side of the spindle whorl is one possible solution to prevent this. In these cases, the friction of the knot against the spindle whorls causes the formation of these irregular depressions.

Spindle whorls (*turbo*) similar to those from Stobi have been discovered in Serbia. They are decorated with incised concentric circles, grooves, rosettes, radially distributed concentric circles, and dots, and they are dated between the 4<sup>th</sup>-6<sup>th</sup> century A.D. (Petković, 1995:43, T. XXIX, XXX; Špehar, 2010:kat.br. 517-530). Two of the spindle whorls (fig. 3:10-11) were discovered in a closed context dated to the 5<sup>th</sup> century A.D. There is little data about the context of the other spindle whorls in this group.

## SPINDLES

Only five spindles have been discovered at Stobi to date (fig. 3:12-16), far fewer than the number of whorls that have been discovered. Stone spindle whorls are one of the most common finds in the residential complex of the 6<sup>th</sup> century CE above the semi-circular court at Stobi, but the absence of spindles suggests that they were made of wood and therefore have not been preserved. All of the spindles discovered at Stobi originate from burials. This is not unexpected since spindles and distaffs are often deposited in female burials during the Roman period. They are regarded as a symbol of femininity or married status (*Biró et al.*, 2012:22). Two groups of spindles can be distinguished: spindles formed with an upper end in the shape of an arrow and spindles which upper end is decorated with grooves and rings.

### Spindles with an Arrow-Shaped Upper End

Two of the spindles from Stobi belong to this type, and only one of those (fig. 3:12) is completely preserved. The preserved spindle was discovered in a female burial. The spindle narrows at both ends, and in the lower half there is symmetrical thickening where the spindle whorl would have been attached. The arrow-shaped upper end allows for simple and quick fastening of the thread during the spinning process. The second spindle (fig. 3:13) was discovered in the same burial, along with a stone spindle whorl and a flat iron object which may have been used in the production of textiles.

The fully-preserved spindle (fig. 3:12) is almost identical to a spindle from the national museum in Hungary, which M. Biro refers to as a hair pin (*Biró*, 1994: Pl.

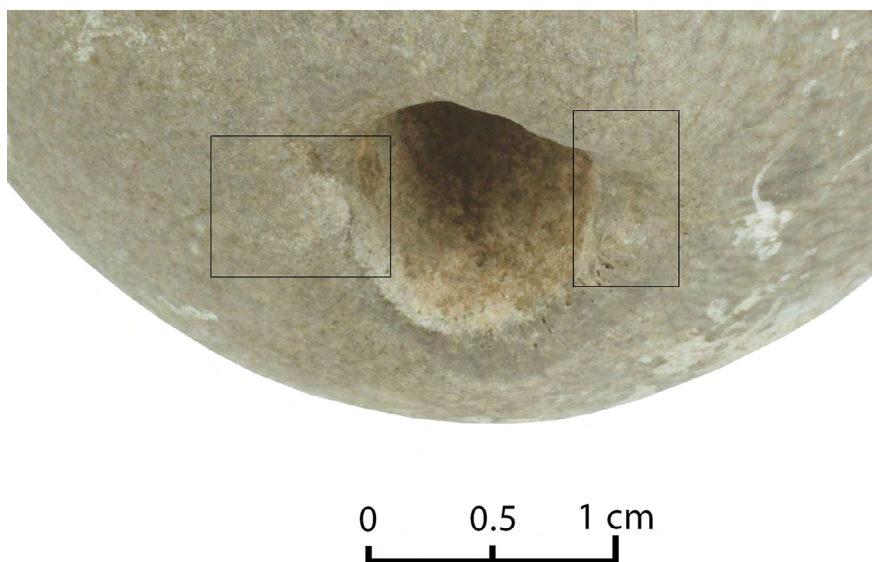


Fig. 4.—Irregular depressions with smooth surface at the lower side of the spindle whorl figure 2:9, possibly formed by the friction of the knot.

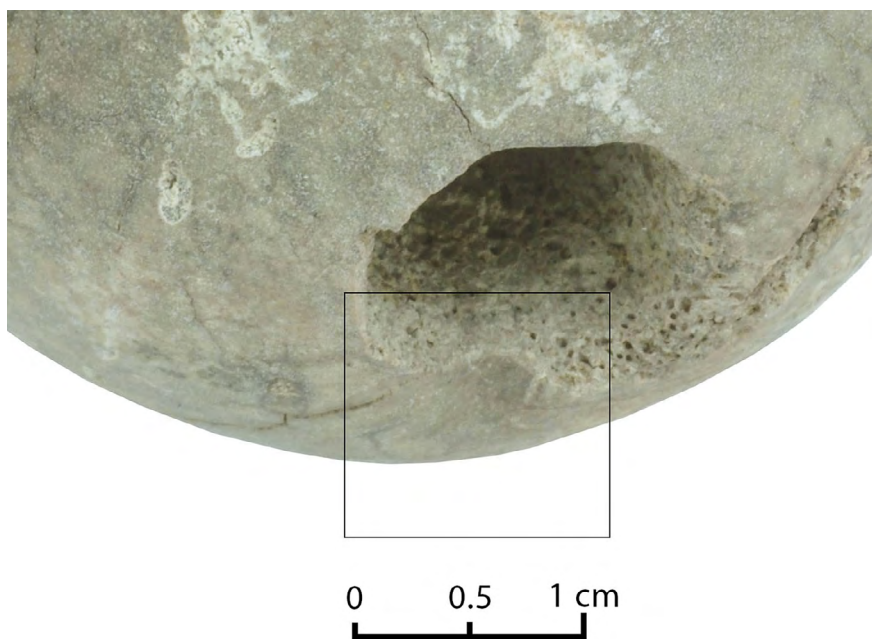


Fig. 5.—Irregular depressions with smooth surface at the lower side of the spindle whorl figure 3:10, possibly formed by the friction of the knot.

XXXIII, 368). Two similar spindles from Salona are dated broadly to the Roman Imperial period (Ivčević, 2002a: 474; Ivčević, 2002b:Sl.22,23). Ivčević identifies other similar spindles: one from Trier dated to the middle to late 1<sup>st</sup> century CE, and one from Ptuj dated to the second half of the 1<sup>st</sup> to the 4<sup>th</sup> century CE (Ivčević, 2002a:474-475; Ivčević, 2002b:Sl.16). There is limited contextual evidence for the fully-preserved spindle (fig. 3:12). It can be broadly dated to the 1<sup>st</sup>-4<sup>th</sup> century when the western necropolis was used as a burial ground. The burial in which the other spindle (fig. 3:13) was discovered has been dated to the 1<sup>st</sup> century CE.

### **Spindles with Their Upper End Decorated with Grooves and Rings**

At first sight, the fragmentation of the spindles of this type impedes their identification; however, since they were discovered in burials along with their spindle whorls (fig. 2:1,3,4), the risk of their misidentification is reduced to a minimum. One type of hairpin and similar large sized sticks are often misinterpreted as spindles in literature and in museum inventories (Biró, 1987:28).

Although the spindle (fig. 3:14) is quite fragmented, it is clear that it was composed of several parts, similar to the spindles described by S. Petković (1995:44). This spindle was found in a grave along with the spindle whorl (fig. 2:1). Two other spindles (fig. 3:15,16) were also discovered together with their spindle whorls (fig. 1:3, 4). They were deposited in a burial along with many hairpins, which unequivocally points toward a female burial.

The context of discovery of the spindle (fig. 3:14) does not provide data for precise dating, but its spindle whorl (fig. 2:1) is quite similar to the spindle whorls discovered at Salona, which are broadly dated to the Roman Imperial period (Ivčević, 2002a:474; Ivčević, 2002b:Sl. 25-37). There are no known parallels for the first of the remaining spindles (fig. 3:15,16), while the second is almost identical to an example from the National Museum of Hungary (Biró, 1994:Pl. LXII, 539). The hairpins discovered in the same burial were used in this region from the 2<sup>nd</sup>-4<sup>th</sup> century CE.

### **DISTAFFS**

The distaff is the last of the three tools used for spinning. There are two types of distaffs: short, or hand, distaffs with a length between 20-30 cm, and long distaffs with a length of about 1 m. The hand distaffs are simple short rods on which the raw fibers that need to be spun are placed. The distaff is held in the left hand, while fibers are drawn out with the right hand, and twisted by the rotating spindle into a thread. The long distaffs, however, are held under the arm and secured to a belt so that both hands remain free. The difference between the hand distaffs and the long distaffs fastened to the belt results from different preparations of the raw material. In the former type, the material should be carded, while for the latter ones, roughly



processed fibers can be used (Patterson, 1956:202). In antiquity, the majority of distaffs were made of wood, bone, ivory, metal, and rarely of glass (Facsády, 2010), amber, or jet (Wild, 1970:32). The simplest distaffs were short, forked sticks, with prongs that support the fibers (Wild, 1970:31). The same function could be achieved by a shallow notch through which several fibers were passed (Wilson, 1938:14).

Short bone rods terminating in a ring at the bottom and with an elaborately carved in female figurine at the top were also used as distaffs, and similar tools are still used Bulgaria today (Biró, 1994:49; Pasztókai-Szeőke, 2011:132). The spinner could fix the distaff on her finger; hence these distaffs are called a finger distaff type (Pasztókai-Szeőke, 2011:132). Their upper ends can have depictions of Aphrodite (Ivčević, 2000:473-480), lions, panthers, bears or another more modest ending (Владкова, 2006:Т.Х, 1; Чернева-Тилкиян, 1999:182-183, Т.ІІІ, 112, Т.ІV, 13). Many authors interpret these distaffs differently, and often assign them various functions such as cosmetic sticks, hairpins, mirror handles, objects used for the intimate care of women, etc. (Petković, 1995:35; Чернева-Тилкиян, 1999:182-183; Владкова, 2006:274; Шарановић – Светек, 1981:156-157).

Four bone distaffs have been discovered at Stobi so far (fig. 3:17-20). Two of these (fig. 3:17-18) were deposited in a burial at the western necropolis at Stobi, one (fig. 3:19) was found in a destruction layer at the acropolis, and the last (fig. 3:20) was recovered from a disturbed grave in the necropolis.

The first distaff (fig. 3:17) is preserved to a length of 12.3 cm. It has a spirally fluted handle and a ring terminal at the bottom. It is broken at the opposite side. This spirally fluted handle, which also occurs on the distaffs (fig. 3:18,20) from the Roman period, most likely symbolizes the twisting of the thread in the spinning process. The surface of the distaff is calcined indicating that it was placed in the grave fire (for burial customs at Stobi see Wesolowski, 1973:97-139).

The ring terminal is missing a second distaff (fig. 3:18). It has a spiral fluted handle and an upper end that terminates in the shape of a pine cone. It is found in a female burial and was deposited in the pit during the grave fire. Only the ring terminal is preserved from a third distaff (fig. 3:19). This distaff was discovered in a destruction layer at the settlement. Since most roman distaffs are discovered in burials, this is quite unusual. It might be a discarded distaff that was damaged during the production process.

The fourth distaff (fig. 3:20) is quite fragmented and only small portions of the handle and the ring terminal are preserved. This distaff also has a scorched surface.

Judging from the shape of the handle, the first distaff (fig. 3:17) is most similar with those discovered at Viminacium and Castrum Novae (Petković, 1995:35, T.XIII, 7, 10), and an identical three angled appendages at the ring can be seen on one distaff from Salona (Ivčević, 2002a:473; Ivčević, 2002b:fig. 17), and on another one from Aquincum (Biró *et al.*, 2012, N.º 236). The context of discovery of this distaff dates to the 1<sup>st</sup>-3<sup>rd</sup> century CE. The dating is similar for the third distaff (fig. 3:19) whose shape and three plastic rings are almost identical with those of the first (fig. 3:17). It is possible both were made by the same pattern or by the same craftsman.

The distaff whose end is in the form of a pine cone (fig. 3:18) was discovered in a burial from the 2<sup>nd</sup> century CE, as are two similar distaffs discovered at Scupi (Јованова, 2013:907). The fourth distaff (fig. 2:20) originated from a disturbed grave dated between the 1<sup>st</sup>-4<sup>th</sup> century CE. Most scholars who deal with similar distaffs from the Balkans date them to the period between the 1<sup>st</sup>-4<sup>th</sup> century CE (Petković, 1995:36; Шарановић-Светек, 1981:156; Владкова, 2006:274; Чернева-Тилкиян, 1999:123; Ivčević, 2000; Јованова, 2013).

## DISCUSSION

In the Roman period, spindle whorls were made of various materials including bone, wood, metal, stone, glass, amber, lead, clay, and even drilled pottery shards. Their shape can be discoid, hemispherical, biconvex or conical, and they can be placed at the top or the bottom end of the spindle, serving to speed up its rotation (Wild, 1970:33). Their weight assists in the extraction of new fibers, thus making the spun thread uniform and more firm. Depending on the desired thickness of the thread, the spindle whorls were of different diameter and weight (Petković, 1995:43). Tight thread is of crucial importance to the quality of the finished garment. A heavy and large spindle whorl was needed to spin thick and high-quality thread, but only a few spindle whorls have a diameter greater than 5 cm (Wild, 1970:33).

Although spindle whorls have certain common features, they are often mistaken for beads. Objects that have a diameter of less than 2 cm are more likely to be beads, while those with a diameter above 2 cm should be identified as spindle whorls (Barber, 1991). The pierced central hole varies between 3 and 4 mm on the smallest spindle whorls, while most have a diameter between 7 and 8 mm. Objects with a hole displaced from the center could not serve as spindle whorls because they would swing during rotation. If the perforation is not perfectly circular but still centrally located, the objects can be used as spindle whorls by using wax, resin, or other materials to secure the spindle whorl to the spindle. The diameter and weight of the spindle whorls played a significant role in the thickness of the thread. Consequently, the maximum weight is set at 140-150 g and the minimum at 8 g (Barber, 1991:51-52). Large spindle whorls were completely useless in cases where the raw material (wool, linen or cotton) had short fibers, because the heavy spindle whorl pulls them too fast and causes the thread to break frequently. A light spindle whorl was therefore required for processing short fibers (Parton, 2013:327-339). Wide spindle whorls spin slowly and twist the thread less, while the narrower ones of the same weight spin faster and twist the thread more (Barber, 1991:52-53).

According to Vladkova, spindle whorls with semi-globular or conical shape are mainly made from the head of the femur of domestic animals or from deer antlers (Владкова, 2002:97). In general, cattle femurs are dominant, although there are rare examples of human bones being used (MacGregor, 1980:98). The reason for choosing the femur most likely lies in its natural form which offers an easy starting

point for further processing; the desired shape and functionality can be achieved with little effort.

It appears that the only difference among the spindle whorls from Stobi is their shape. The context and chronology suggest a possible change in the thickness of the spinning thread during Stobi's history. The light, discoid spindle whorls used for spinning thin and fine thread were found in contexts from the 1<sup>st</sup>-4<sup>th</sup> century CE, while the heavier, hemispherical spindle whorl weights used for spinning thicker and coarser thread were found in later contexts, from the 5<sup>th</sup>-6<sup>th</sup> century CE.

The simplest form of the spindle is a rod made of wood or bone with a length of about 30 cm and symmetrical thickening at the lower end where the spindle whorl is attached. The spindle winds the thread during in the spinning process. The spindle cannot be used as a shuttle while weaving (Forbes, 1956:165; Wild, 1970:36). The basic shape of spindles made of wood has remained almost unchanged from the origins of weaving to the present. Spindles made of bone represent luxury items. The bone spindles are made on a lathe and are composed of several parts.

They can be decorated with geometric shapes, incised lines, rings, cones, astragali and more. In addition to having an aesthetic function, this ornament also served to tighten the winding of the thread (Petković, 1995:44-45). Although some spindles may have a metal hook or an incised notch on the upper end to which the thread is fastened, most of them have plain smooth ends without a hook. In these cases, the thread is probably tied in a knot and kept tight by the weight of the spindle (Forbes, 1956:152, 165; Patterson, 1956:202; Wild, 1970:36).

Differences in the shape of the upper end of the spindles discovered at Stobi cannot be associated with different periods. Spindles with an upper end in the form of an arrow and the spindles whose upper end is decorated with rings and grooves come from similar contexts. All of them were discovered in burials. The large number of stone spindle whorls discovered in the residential complex and the absence of spindles indicate that bone spindles have a funerary role similar to the distaffs, while the spindles for everyday use were probably made of wood and therefore have not been preserved.

The narrow diameter between 0.4 cm and 0.7 cm at the distaffs handles from Stobi, makes them too thin and fragile to withstand the weight of the spindle, spindle whorl, and yarn, especially if they were used on a daily basis.

Furthermore, one of the earliest indications of the symbolic meaning of the distaffs can be seen in the Iron Age distaffs discovered in Italy. They were made of precious materials and were deposited in female aristocratic burials where they had a symbolic value and represented important markers of elite female status (Gleba, 2011:26-32). Roman glass distaffs terminating in bird depictions are known from Aquincum and the surrounding necropolises, and their symbolic value has recently been discussed by A. Facsády (2010:170). A similar interpretation is offered by S. Ivčević for the distaffs depicting Aphrodite. Discussing the samples from Salona, she emphasizes their apotropaic role and argues against their everyday use (Ivčević, 2000:473-480).

These types of distaffs are generally absent in the settlements, while spindle whorls are frequent finds. The distaffs used in everyday life were most likely made of wood and have not been preserved. It remains unclear whether they were short and held in the artisan's hand or long and fastened to a belt. Only a few bone distaffs have been found in Roman baths (Владкова, 2006:274; Шарановић-Светек, 1981, footnote, 27); most come from burials (Чернева – Тилкиян, 1999:182; Владкова, 2006:274), and particularly female burials (Шарановић – Светек, 1981:157; Petković, 1995:36; Biró *et al.*, 2012:21). Moreover, diameters between 0.4 cm and 0.7 cm at the handles of the distaffs from Stobi make them too thin and fragile to withstand the weight of the spindle, spindle whorl, and yarn, especially if they were used on a daily basis. The contexts and attributes presented above, which are attested at Stobi, indicate that the distaffs from Stobi with a ring terminal represent the luxury examples that had an apotropaic and symbolic role, infrequent everyday use, and were most commonly involved in funeral practice.

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